Non-Technical Summary:

Sustainable Thinking Classrooms

The main purpose of the ACTS II\(^1\) (Activating Children's Thinking Skills in Sustainable Thinking Classrooms) project was to create and develop a pedagogy to improve learning in primary schools, through enhancing children's thinking skills across the curriculum. ACTS adopted an infusion methodology where the goals of enhancing thinking and subject/topic understanding were simultaneously pursued.

The theoretical perspective with regard to children's learning focused on the development of their metacognitive capacities - on their ability to become proactive about their learning in terms of planning, monitoring and appraising their thinking. Three strands of investigation were pursued within this framework. The first strand comprised the main study: it evaluated an intervention process to enhance children's thinking and learning, and the effects on both pupils' and teachers' learning were appraised. In a second study, thinking lessons were video recorded to identify features of classroom dialogue likely to mediate the development of metacognition. The final strand aimed to design a professional development programme for teachers, to write curriculum materials, and to create longer term strategies for sustaining thinking classrooms.

One of the primary achievements of the research is that it tested the robustness of 'infusion' as a methodology for developing children's thinking across-the-curriculum. One hundred and thirty-four teachers of different ages and years of teaching experience, who taught in schools of different sizes and management types, participated in five ACTS professional development days throughout each school year. They planned, designed and taught hundreds of 'infused thinking lessons' to 8-11 year old children (Key Stage 2 in Northern Ireland) from a variety of social backgrounds. Infusion lessons were taught across all areas of the curriculum and integrated into schemes of work. Teachers reported substantial shifts in their classroom practices, in the benefits for children, and in their conceptions of themselves as teachers. Thus the project can be characterised as a prototype for a scaled-up thinking curriculum — at least at the primary level.

In the main intervention study, comparisons were made between a group of control children (\(N=548, 25\) classes) and two groups of children who participated in the intervention for different lengths of time: ACTS 1/2 Years (\(N=412, 17\) classes) and ACTS 3 Years (\(N=292,12\) classes). The main finding was that participating in ACTS had a statistically significant positive effect on how children rated themselves with regard to their use of cognitive and metacognitive strategies, their willingness to work harder and to put in more effort. For example, ACTS children rated themselves higher than control children on items such as "I ask myself questions when I do my work to make sure I understand", "I spend some time thinking about how to do my work before I begin it", and rated themselves lower on items such as "When I do work I just want to get it done as quickly as possible".

There are important qualifications to this general conclusion. Only those children who participated in ACTS for three years benefited - there were no effects for those who participated for one or two years. In addition, the positive benefits were not the same for all children. Moderate to high ability children (who represented 80% of the sample) benefited most. No positive outcomes were identified for low ability children. While all of these measures were significantly correlated with measures of attainment in reading and mathematics, the effects were small when compared to the impact of other variables such as prior ability. In other words, the positive changes in children's
self-ratings had only weak effects on attainment, although they were statistically significant in some cases.

Video recordings of thinking lessons were conducted with a sub-sample of 21 teachers. Analyses of the videos showed that the ACTS teachers arranged their classrooms in ways that supported opportunities for children's talk and created conditions for mediating metacognition. They engaged children in cognitively demanding tasks and made thinking more evident in classrooms by developing a vocabulary for talking about thinking and by modelling thinking in more concrete situations. What made good thinking lessons distinctive was that learners were given opportunities to talk about thinking, to jointly construct meaning, to evaluate their thinking and to make connections to contexts both within and outside the curriculum. The evidence from the video recordings was corroborated by teachers' reports about changes in their classroom practices. A larger sample of ninety-four teachers who participated in the ACTS professional development programme completed questionnaires. They reported substantial changes with regard to both the quantity and quality of group work, increases in children's talking and listening, in the quality of questioning and, overall, more pupil involvement and independence. They also reported significant changes in their images of themselves as teachers—an increased awareness of the importance and value of teaching thinking, being more open to alternative approaches and allowing children to be more independent in their learning.

A Handbook was prepared that included the general ACTS framework and methods, together with examples of infusion lessons, scripted by teachers. The handbook will be published as part of the TLRP's Improving Practice Series (negotiations currently in progress). Training notes are also available. Additional material, linked to the Improving Practice book will be made available through a website (www.sustainablethinkingclassrooms.ac.uk). Already, sister projects have been launched in Wales (Ceredigion, Carmarthenshire), England (Surrey), and Scotland (East Ayrshire).

National curriculum planners across the UK and elsewhere are now engaged in revising and redesigning their curricula and writing guidance materials to help schools move in the direction of developing children's thinking. The methodology and findings from the ACTS project are informing their policies and practices (e.g., CCEA in Northern Ireland, ACCAC in Wales, NCCA in the Republic of Ireland). The biggest challenge will be to find ways of making long-lasting changes to classroom pedagogy in ways that promote and sustain children's capacity to become independent and self-regulated learners. The research findings from ACTS give some direction with regard to a theoretical approach, curriculum planning and classroom pedagogy but they also show that there are no quick fixes.

1 This version of the project was called ACTS II to distinguish it from an earlier version which was labeled ACTS I. The current project was co-funded by the Department of Education in Northern Ireland and all five Education and Library Boards.